ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

(MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 56 no. 1 15 augustus 1980

THE GENUS *ODONTOFROGGATIA* ISHII (HYMENOPTERA CHALCIDOIDEA, PTEROMALIDAE EPICHRYSOMALLINAE)

by

J. T. WIEBES

Afdeling Systematische Dierkunde der Rijksuniversiteit,
c/o Rijksmuseum van Natuurlijke Historie, Leiden

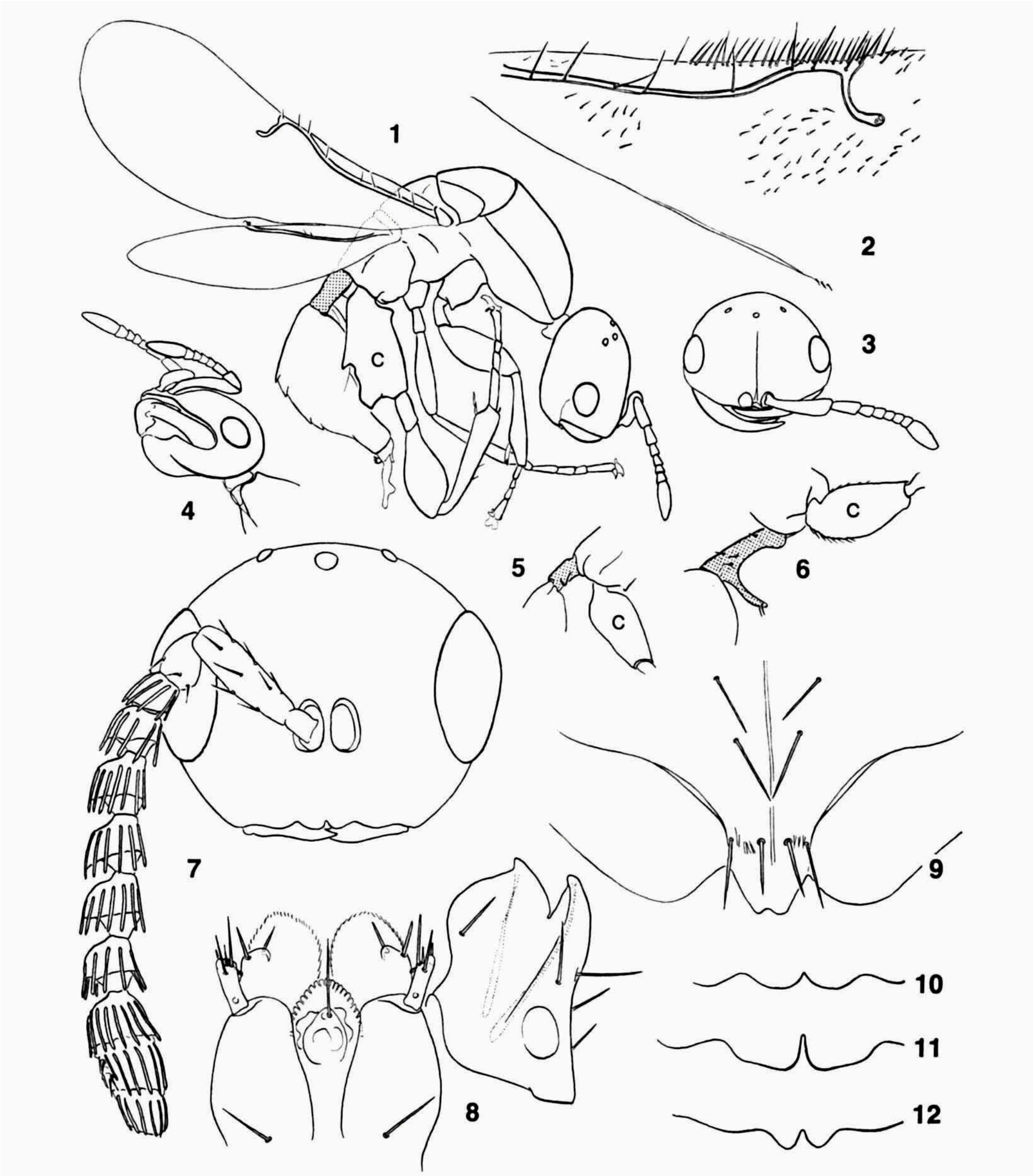
With 12 text-figures and one plate

Abstract

Descriptions of three new species of *Odontofroggatia*: *corneri* (type locality Penang, Malaya; also recorded from Perak, Malaya and from the Solomon Island Ysabel), *galili* (type locality Ein Geddi, Israel; also recorded from Perak, Malaya) and *ishii* (type locality Penang, Malaya) are given. For all species the host species of fig is *Ficus microcarpa* Linn.f.

For many years *Ficus microcarpa* Linn.f., widely cultivated in avenues and parks in the coastal plain and inland valley of Israel, used to be a favourite tree, since it did not cause any dirt around it. It was introduced without its pollinator-wasps and the figs dropped while still small and dry. Recently, however, the figs were found galled by a species of *Odontofroggatia*, causing much larger, juicy fruit (of course, without seed), which accumulate around the trees. The phenomenon is being studied by Professor J. Galil of Tel-Aviv University, who sent the wasps to me for identification. I compared the sample with others from the collection of the Rijksmuseum van Natuurlijke Historie (abbreviated RMNH in the text) and with the original description of *O. gajimaru* Ishii, 1934, and I now recognise four species in the genus. I considered the possibility that all are forms of one species, but rejected this because of their great structural dissimilarity, which is not correlated with size. The new species are named: one after Prof. Galil, one after Prof. E. J. H. Corner F.R.S. of Cambridge (who collected most samples studied) and one after Tei Ishii, who erected the genus *Odontofroggatia*.

The photographs used for the composition of the plate were made by



Figs. 1-12. *Odontofroggatia galili* spec. nov., compared with details of *O. ishii* spec. nov. (figs. 5, 11) and *O. corneri* spec. nov. (figs. 6, 12). 1-6, male; 7-12, female. 1, lateral aspect of male; 2, wing venation; 3, head and left antenna, frontal aspect; 4, head, oblique ventral aspect; 5-6, petiole (shaded) and hind coxa (C) of 5, *O. ishii* and 6, *O. corneri*; 7, female head and right antenna, frontal aspect; 8, mouthparts; 9, hypopygium; 10-12, epistomal margin of 10, *O. galili*, 11, *O. ishii* and 12, *O. corneri*. Figs. 1, 3-6, × 30; 2, × 65; 7, × 105; 8-12, × 210.

Mr. E. de Stoppelaar on the Stereoscan Electron Microscope of the Geological Institute of the Leiden University. I owe him many thanks for his expert and kind assistance.

Odontofroggatia Ishii

Odontofroggatia Ishii, 1934, Kontyû, 8: 95, descr. ♀ ♂, type-species *O. gajimaru* Ishii, 1934.

Diagnosis. — Epichrysomallinae with tetramerous tarsi; the notauli complete; the antennal formula of the female 116(3), of the male 115(3); the male mandibles falcate in most species; the male gaster petiolate, in most species the petiole armed with lateral teeth or a ventral hook.

Key to the species of *Odontofroggatia*

1. Female: the mandibles bidentate; the propodeum with a transversal ridge in the posterior part or without. Male: the gastral petiole with a ventral hook or not armed 2
— Female: the mandibles tridentate; the propodeum with a longitudinal ridge or ridges. Male: the gastral petiole with a tooth on either side . . 3
2. Female: the funicular segments of the antenna serrate; the toruli close together; the epistomal margin (fig. 10) with wide, rounded lobes; the propodeum (pl. 1 fig. 2) without much sculpture. Male: the gastral petiole not armed; the hind coxa robust, with dorsal teeth . . . *galili*
— Female: the funicular segments of the antenna not serrate; the toruli spaced for a distance equal to their width; the epistomal margin (fig. 12) with smaller lobes; the propodeum (pl. 1 fig. 4) with a transversal ridge in the posterior part. Male: the gastral petiole armed with a long, acute ventral hook; the hind coxa not armed . . . . *corneri*
3. Female: the antennal toruli situated below an imaginary line connecting the lower margins of the eyes; the propodeum with a median ridge. Male: the labial palpi obsolete; the mandibles long and falcate . *gajimaru*
— Female: the antennal toruli higher in the face; the propodeum (pl. 1 fig. 3) with two rounded ridges in the anterior part, by longitudinal ridges connected with the posterior margin. Male: the labial palpi present; the mandibles short . . . . *ishii*

Odontofroggatia galili spec. nov.

(figs. 1-4, 7-10; pl. 1 figs. 1-2)

Material. — Series ♀ ♂, Israel, Ein Geddi, leg. D. Eisikowitch, 13.ii.1979, ex *Ficus nitida* (= *F. microcarpa*); RMNH no. 3645, the female holotype and some paratypes slide-mounted. Some paratypes are deposited in the British Museum (Natural History), London.

One ♂, Malaya, Perak, Taiping, leg. E. J. H. Corner, 7.vii.1972, ex *Ficus microcarpa* Linn.f. (det. Corner); RMNH no. 2319.

Description. — Female (pl. 1 fig. 1). Head (fig. 7): the length distinctly less than the width across the compound eyes (5 : 6); three ocelli. The longitudinal diameter of the eye 1½ times the length of the cheek. The antennal toruli situated close together in the middle of the face, well above an imaginary line connecting the lower margin of the eyes. The epistomal margin (fig. 10) rather widely bilobed, the lobes rounded in outline. The mouthparts (fig. 8): the labium bears a small ventral lobe with one or two long setae, there are no labial palpi; the maxillary palpi consist of one long segment and a short apical top; the mandible bidentate, with two glands. The antenna (fig. 7) eleven-segmented; the funicular segments serrate, each with one row of long sensilla projecting far beyond the apical edge, the club with some setae and, antiaxially, also short linear sensilla next to the longer as on the funicle.

Thorax almost glabrous, faintly striate on the scutum and scutellum, the notauli complete up to the transscutellar line, this line sharp. The propodeum (pl. 1 fig. 2) without heavy sculpture; the spiracle partly covered by a lateral flange. Fore wing (16 : 7) $1^1/_3$ mm long, the submarginal, marginal and stigmal veins approximately in ratio 5 : 1 : 1, the disk with microtrichia; the hind wing (11 : 3) 1 mm long. Fore leg: the tibial armature consisting of one subapical ventral spur, three axial spines between the spur and the apex and one in the dorso-apical angle; the four tarsi approximately in ratio 3 : 3 : 3 : 5. Mid leg: the tibia with a stout spine at one-third of its length and one subapical ventral spur; the four tarsi approximately in ratio 14 : 5 : 5 : 6. Hind leg: the tibia with two subapical ventral spurs and some stout antiaxial spines; axially, there are a number of straight spines and a row of curved peg-like spines between the spurs and the apex; the four tarsi approximately in ratio 14 : 5 : 4 : 6.

Gaster large, ovoid in outline, the ovipositor and its valves inserted; the hypopygium (fig. 9) wide and short, with a short row of long setae on either side of the midline and two laterals near the base of the spine.

Length (head, thorax and gaster) 1.2-1.7 mm. Colour yellowish, darker dorsally especially on the thorax.

Male. — Head (figs. 3, 4) distinctly shorter than wide across the compound eyes (3 : 4); three ocelli. The longitudinal diameter of the eye four times as long as the cheek. The antennal toruli situated at the epistomal margin, which is almost straight and very wide. The mouthparts as in the female, but the mandible very long and falcate. The antenna is ten-segmented; the funicular segments with some setae, the three segments evidently united to form the club, with linear sensilla.

Thorax (fig. 1) much as in the female, but the pronotum much longer i.e., twice as long as wide. The propodeum about half as long as the mesonotum, without much sculpture. The wings and legs (fig. 1) as in the female, except for the following details. Tarsal ratio of the fore leg 1 : 1 : 1 : 3, the mid leg 8 : 4 : 4 : 7. The hind coxa robust, half as wide as long, with rather hyaline dorsal outgrowths; the femur inflated; the four tarsi approximately in ratio 5 : 2 : 2 : 3.

Gaster (fig. 1) petiolate, the petiole not armed but for some setae; from the apex of the ninth segment onwards, where small pygostyles are visible, the segments are tubular, exserted in most specimens; the claspers of the genitalia bear three large claws.

Length (head, thorax and gaster up to and including the ninth segment) 1.4-1.9 mm. Colour rather uniform yellow-brown, the femur and tibia of the hind leg with a brownish transverse band.

Odontofroggatia corneri spec. nov. (figs. 6, 12; pl. 1 fig. 4)

Material. — Series ♀ ♂, Malaya, Penang, leg. E. J. H. Corner, 6.i.1978, ex *Ficus microcarpa* Linn.f. (det. Corner); RMNH no. 3261, the female holotype and some paratypes slide-mounted. Some paratypes are deposited in the British Museum (Natural History), London.

One ♂ and one copula, Malaya, Perak, Taiping, leg. E. J. H. Corner, 7.vii.1972, ex *Ficus microcarpa* Linnf. (det. Corner); RMNH no. 2320.

Two ♀ series ♂, Solomon Isl. Ysabel, leg. E. J. H. Corner, 21.ix.1965, ex *Ficus microcarpa* Linn.f. var. *naumanni* (Engler) Corner (det. Corner); RMNH no. 940.

Description (in comparison with the other species). — Female. Head: the length four-fifths of the width across the compound eyes, which are twice as long as the cheek. The antennal toruli separated by a space equal to their width. The epistomal margin (fig. 12) bilobed, the lobes narrower than in *O. galili*, the cleft shallower than in *O. ishii*. The mouthparts as in *O. galili*. The antennae much as in *O. ishii*, but without the many setae: there is only a single one on the antiaxial surface of each segment.

Thorax much as in *O. galili*; the propodeum (pl. 1 fig. 4) with a strong transversal ridge in the posterior part. Gaster: the hypopygium with two rows of three long setae.

Male. — Mainly as in *O. galili*, but at once distinguishable by the long, ventrally armed petiole of the gaster (fig. 6). The propodeum is larger relative to the mesonotum (2 : 3) and the suture between the propodeum and the metapleuron is more clear-cut. The hind coxa (fig. 6) is not armed.

Odontofroggatia gajimaru Ishii

Odontofroggatia gajimaru Ishii, 1934, Kontyû, 8: 95-97, pl. ii figs. 12-16, descr. ♀ ♂, Okinawa, Naha, leg. H. Yashiro, 2.v.1924, ex *Ficus retusa* L. var. *nitida* (= *F. microcarpa*).

Odontofroggatia ishii spec. nov. (figs. 5, 11; pl. 1 fig. 3)

Material. — 5 ♀ 12 ♂, Malaya, Penang, leg. E. J. H. Corner, 6.i.1978, ex *Ficus microcarpa* Linn.f. (det. Corner); RMNH no. 3255, the female holotype and some paratypes slide-mounted. Some paratypes are deposited in the British Museum (Natural History), London.

Description (in comparison with *O. galili*). — Female. Head: the length four-fifths of the width across the compound eyes, which are almost twice as long as the cheek. The antennal toruli separated by a space equal to their width. The epistomal margin (fig. 11) with a deep median cleft, the lobes wider and more angular in outline than in *O. galili*. The mouthparts distinctly larger, projecting beyond the head even in frontal aspect: the labium with two palpi (consisting of one segment and bearing a long apical setae) next to the median lobe depicted in fig. 8; the maxillae with more spines along the lateral margin, palpi as in *O. galili*; the mandible tridentate, but with two glands. The funicular segments of the antenna not serrate, the sensilla less in number and shorter; strong setae occur on all segments.

Thorax glabrous; the transscutellar line wide, with some structure in the groove; the propodeum (pl. 1 fig. 3) with a distinct sculpture, consisting of two rounded ridges in the median anterior part, by longitidunal ridges connected with the posterior margin, which is produced into a very short stalk. The wings and legs as in *O. galili*.

Gaster: the spine of the hypopygium even shorter than figured for *O. galili*; the rows of long setae consisting of three setae instead of two and with one lateral setae on either side on the disk.

Male. — Head shorter than wide across the compound eyes (7 : 8). The longitudinal diameter of the eye twice as long as the cheek. The antennal toruli situated higher in the face than in *O. galili*, at a distance to the epistomal margin (shaped much as in the female) equal to their length. The mouthparts much as in the female, but the bidentate mandibles longer, although not half as long as in the other males treated here.

Thorax: the dorsum with many setae; the propodeum half as long as the metanotum; the hind coxa (fig. 5) rather slender. The petiole of the gaster (fig. 5) relatively short, armed with a tooth on either side.



Fig. 1. *Odontofroggatia galili* spec. nov., dorsal aspect of female (× 100); 2, do., detail (propodeum) for comparison with 3, *O. ishii* spec. nov. and 4, *O. corneri* spec. nov. (× 350).